

**Quarterly Progress Report**  
**April - June 1994**  
**Boise, Idaho**

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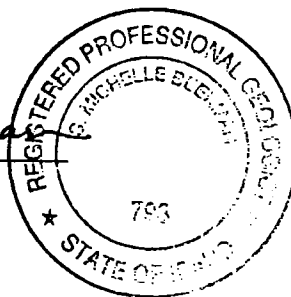
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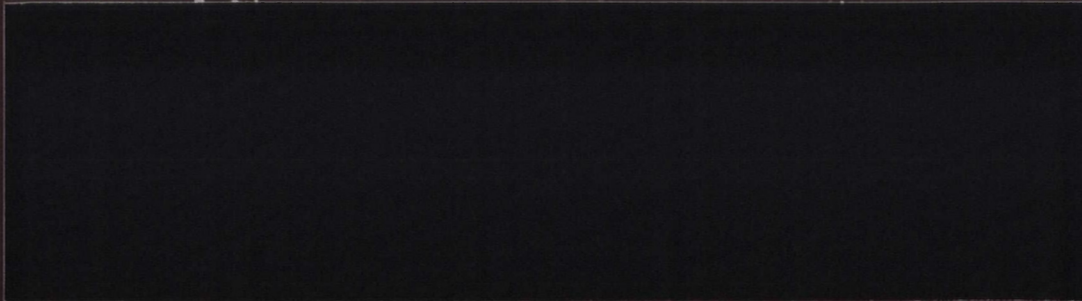
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- 1 Water Supply Order Activities Decision Tree

## DISTRIBUTION

## EXECUTIVE SUMMARY

This progress report presents data collected and summarizes activities performed in association with ongoing investigations by VW&R in Boise, Idaho, from March 26, 1994, through June 24, 1994. Activities to be conducted during the next reporting period are also presented.

Activities conducted under the Water Supply Order during the reporting period include:

- Connecting residents to the Boise Water Corporation (BWC) water system as authorization is received by VW&R
- Conducting quarterly sampling
- Sending out a final notice certified letter to residents within the Affected Area who have not connected to the BWC water system
- Submitting a letter to the Department to provide an update on proposed Water Supply Order activities.

Work planned for the next reporting period includes:

- Resampling wells with tetrachloroethylene (perc) concentrations above the analytical detection limit but below 5 micrograms per liter ( $\mu\text{g/l}$ ) and other selected wells in the Preliminary Study Area, (PSA) as part of a quarterly sampling program
- Continuing water line connections as authorizations are received and reimbursement for 1 year of BWC utility costs
- Sending out a letter to residents with deep and unknown depth wells explaining the overall well evaluation approach, requesting permission to conduct proposed well evaluation activities, and requesting updated well use information.

Activities conducted under the PSA Order during the reporting period include:

- Continuing Risk Assessment activities

- Sampling the monitoring well at 2212 N. Sunrise Avenue
- Installing a transducer and data logger in the Sunrise Well to monitor the water level in the shallow aquifer
- Continuing access negotiations with property owners for the installation of monitoring wells and extraction/monitoring wells
- Scheduling drillers for the well installation program to be implemented along N. Five Mile Road.

Activities to be conducted under the PSA Order during the next reporting period include:

- Installing two extraction/monitoring wells along N. Five Mile Road in accordance with the Soil Boring SAP
- Continuing activities associated with completion of the Risk Assessment
- Submitting a Geophysical SAP approximately 2 weeks after completion of the soil boring field program
- Submitting an Interim Remedial Measures (IRM) Work Plan for PSA remediation activities
- Installing four groundwater monitoring wells associated with IRM activities.

Work conducted under the Mall Order during the reporting period included:

- Sampling the extraction/monitoring well (EW-1) near the Pier 1 Imports store
- Submitting the Draft Mall Risk Assessment
- Monitoring the soil vapor extraction system and collecting air samples in accordance with permit requirements.

Work planned for the next reporting period in association with the Mall Order includes:

- Monitoring the soil vapor extraction system
- Submitting the Mall Site Investigation Report/Remedial Action Plan
- Obtaining authorization from Pier 1 Imports to add vapor extraction capabilities to the EW-1 well head.

## 1.0 INTRODUCTION

This progress report presents data collected and summarizes activities performed in association with ongoing Van Water & Rogers Inc. (VW&R) investigations in Boise, Idaho, from March 26, 1994, through June 24, 1994. This progress report has been prepared by Harding Lawson Associates (HLA) for the sole use of VW&R and the State of Idaho Department of Health and Welfare, Division of Environmental Quality (Department), the only intended beneficiaries of our work. No other party should rely on the information contained herein without prior written consent of HLA.

This report has been prepared to meet the requirements of the Consent Orders dated October 9, 1992 (Boise Mall and Preliminary Study Area [PSA] Orders), between VW&R and the Department. The scope of work for this report was originally outlined in *Exhibit 3, Work Plan, Boise Town Square Mall Supplemental Investigation and Final Remediation, Boise, Idaho (HLA, 1992a)*. This report presents a summary of activities conducted during the reporting period and activities to be conducted during the next reporting period associated with the Water Supply Order dated January 3, 1992, and the PSA and Boise Mall Orders.

## 2.0 WATER SUPPLY ORDER

### 2.1 Work Conducted During the Reporting Period

Activities conducted under the Water Supply Order (WSO) during the reporting period included:

- Connecting residents to the Boise Water Corporation (BWC) water system as authorization is received by VW&R
- Conducting quarterly sampling of wells historically containing tetrachloroethylene (perc) above the analytical detection limit but below the EPA's maximum contaminant level (MCL) of 5 micrograms per liter ( $\mu\text{g/l}$ ) and other select wells
- Sending out a final notice letter to residents within the Affected Area who have not connected to the BWC water system
- Submitting a letter to the Department regarding upcoming WSO closure activities.

#### 2.1.1 Quarterly Sampling

In accordance with requirements of the WSO, wells containing perc concentrations above the analytical detection limit but below the MCL of 5  $\mu\text{g/l}$  and other selected wells were sampled to monitor the dissolved perc concentration in groundwater. Groundwater sampling was conducted on May 19, 1994. Prior to sampling, authorization was obtained from well owners to collect samples from their wells. One well normally sampled as part of the regular quarterly monitoring program was not sampled due to an inoperative pump. In addition to wells sampled as part of the regular quarterly program, authorization was obtained from one property owner whose property is located on Wildwood Avenue, downgradient of the Affected Area as defined by HLA's letter dated March 24, 1993 (HLA, 1993a). Additionally, the monitoring well at 2212 Sunrise Avenue was sampled.

Sample collection activities were performed in accordance with the Quality Assurance Project

Plan (QAPP) and are described in the following sections (HLA, 1992b). The sampling method used to collect groundwater samples from the private wells was a function of well construction and access. In general, wells were purged with their installed pumps for a minimum of 5 minutes and until the pH, temperature, and conductivity readings stabilized. Following purging activities, groundwater samples were collected from the discharge line at the access point closest to each well. The Sunrise monitoring well was purged a maximum of three well volumes using a polyvinyl chloride (PVC) bailer, and then sampled using a stainless steel bailer. All samples were placed in sample containers appropriate for the required analysis. All samples were placed in a cooler that was chilled to a temperature of approximately 4 degrees Celsius and sent under chain of custody via overnight courier to Analytical Technologies, Inc. (ATI), Renton, Washington.

Duplicate samples were collected from two wells and laboratory-prepared trip blanks were shipped in the coolers along with the well samples to the analytical laboratory.

All samples were analyzed by ATI for halogenated volatile organic compounds (VOCs) using EPA Test Method 8010. Specific analytical results obtained from private well samples are confidential. In general, perc was detected in 14 of the 17 samples at concentrations ranging from 0.5 to 200  $\mu\text{g/l}$ . Four samples contained perc at concentrations greater than the EPA's MCL of 5  $\mu\text{g/l}$ . Ten samples contained perc at concentrations above the detection limit but below the MCL. Trichloroethene (TCE) was detected in seven well samples at concentrations ranging from 0.2 to 1.2  $\mu\text{g/l}$ . Of these, TCE has been detected in previous sampling episodes at one sampling location. The concentration of TCE detected at this location corresponds to previously detected concentrations. The remaining six locations do not have a history of TCE detections and, although the laboratory indicated that all results for the May 1994 sampling were confirmed, the detection of TCE at or near the detection limit of 0.2  $\mu\text{g/l}$  in these

samples is suspect. TCE was detected at concentrations ranging from the detection limit of 0.2 µg/l to 0.5 µg/l at these locations. The results from the next quarterly sampling event will be evaluated with respect to TCE. Halogenated VOCs were not detected in the trip blank.

Evaluation of quality assurance/quality control data indicated that the data are accurate and precise (Table 1). The data also met the method-specified holding times. Overall completeness was 99 percent and exceeds the goals specified in the QAPP (HLA, 1992b).

The individual results of the sample analyses have been provided under separate cover to each of the respective well owners.

#### **2.1.2 Final Connection Notices**

A final notice letter was sent via certified mail to six residents/owners in the Affected Area who have not responded to previous offers from VW&R to connect the residence to the BWC water system. The letters were mailed in April and May 1994. Of the six residents, three have provided written authorization to connect, one resident declined to hookup, and two residents have not yet responded.

#### **2.1.3 Water Supply Update Letter**

A letter was mailed to the Department on June 15, 1994, to provide an update with regard to proposed upcoming WSO closure activities. The letter corresponded to activities described in the WSO Activities Decision Tree (Plate 1).

The letter provided a summary of resident addresses with deep wells (greater than 75 feet deep) and unknown depth wells, and stated whether those residences were connected to the BWC water supply system. The letter also provided an approach for evaluating well depths and construction details through geophysical and side-scanning television methods. Because the letter contained resident addresses and analytical results, it is considered confidential.

## **2.2 Work Planned for Next Reporting Period**

Wells with concentrations of perc above the analytical detection limit but below the MCL of 5 µg/l and other selected wells will continue to be sampled on a quarterly basis. Sampling activities for the third quarter of 1994 are currently scheduled for mid-August.

Activities relating to well evaluation associated with the WSO will be initiated during the next quarter. The first step will be to mail a letter to residents with deep or unknown depth wells that explains the overall approach for well evaluation, requests permission to conduct proposed activities, and requests updated information regarding well use.

Connections to water mains will continue during the next reporting period until all connections are completed for properties whose owners have provided written authorization to VW&R. Reimbursement for one year of BWC water utility costs continues for west Boise residents as requests are received by VW&R.



### **3.0 PRELIMINARY STUDY AREA ORDER**

#### **3.1 Work Conducted During the Reporting Period**

##### **3.1.1 Monitoring Well Sampling**

The monitoring well at 2212 N. Sunrise Avenue was sampled as part of the regularly scheduled quarterly sampling program. The results have been included in the WSO section of this report but are also reported here. Prior to sampling, three well volumes of water were removed from the well using a clean PVC bailer. The well was then sampled with a stainless steel bailer following procedures described in the QAPP (HLA, 1992b). The sample was analyzed for VOCs using EPA Test Method 8010. Perc was detected in the well sample at a concentration of 0.7 µg/l. No other VOCs were detected in the well sample.

##### **3.1.2 Transducer/Data Logger Installation**

The well vault covering the Sunrise monitoring well was replaced with a larger vault to allow for installation of a data logger and transducer in the well vault and well, respectively. The purpose of the transducer is to record water level fluctuations to evaluate the effect of pumping of the Bali Hai Community Well on the shallow aquifer. VW&R will coordinate with BWC to obtain pumping information for the Bali Hai well.

##### **3.1.3 Access for Well Installation Along N. Five Mile Road**

Access negotiations continued during the quarter with property owners for installation of the proposed monitoring/extraction wells along N. Five Mile Road, in accordance with the Soil Boring Sampling and Analysis Plan (HLA, 1993b). In addition, negotiations for access to install monitoring wells have continued.

##### **3.1.4 Driller Schedule for Five Mile Wells**

Hiddleston Drilling and Pump, Mountain Home, Idaho, has tentatively been scheduled to begin

work on the well installation program along N. Five Mile Road on July 5, 1994. The final drilling schedule is dependent on receipt of written access agreements from the property owners.

#### **3.2 Work Planned for the Next Reporting Period**

Work activities associated with completion of the PSA Risk Assessment will continue during the next quarter.

Once access is granted, the monitoring/extraction wells will be installed along N. Five Mile Road in accordance with the PSA Soil Boring SAP (HLA, 1993b).

Following completion of the soil boring program, a Geophysical SAP is scheduled to be submitted to the Department.

An Interim Remedial Measures (IRM) Work Plan is scheduled to be submitted to the Department in June/July 1994. The IRM Work Plan will detail remedial measures proposed for implementation in the PSA. Groundwater monitoring wells will be installed along N. Five Mile Road as part of the monitoring/extraction well installation program. These wells will be used to monitor the effectiveness of the IRM.

## 4.0 BOISE MALL ORDER

### 4.1 Work Conducted During the Reporting Period

The following activities were conducted during the reporting period:

- Sampling the extraction/monitoring well near the former aboveground perc tank at the Pier 1 Imports store (Well EW-1)
- Submitting the Draft Mall Risk Assessment
- Monitoring the soil vapor extraction system, and collecting air samples in accordance with permit requirements.

#### 4.1.1 Extraction Well Sampling

On March 31, 1994, groundwater samples were collected from the extraction well located near the Pier 1 Imports store (Well EW-1). These analytical results were provided to the Department in a letter dated May 16, 1994 (HLA, 1994a). Two groundwater samples were collected from the upper screened interval (upper 45 feet) following discharge of approximately 560 gallons of water. The samples were assigned identification numbers 94033101 and 94033102. A laboratory-supplied trip blank (sample number 94033103) accompanied the groundwater samples. A sample was also collected from the Baker Tank (sample number 93033104) used to temporarily store water generated during well installation and well development and purge water pending disposal. All four samples were shipped via overnight courier to Analytical Technologies, Inc., Renton, Washington, where they were analyzed for halogenated and aromatic volatile organic compounds using EPA Test Methods 8010 and 8020. Sampling and shipping methodologies were in accordance with standard protocols.

Perc was detected in the groundwater samples collected from Well EW-1 at concentrations of 20,000 and 22,000  $\mu\text{g/l}$ . Cis-1,2 dichloroethene was detected in both samples at concentrations of 2.1 and 0.3  $\mu\text{g/l}$ . Toluene was detected in both samples at concentrations of 3.3  $\mu\text{g/l}$ .

1,1,1 trichloroethane (1,1,1 TCA) was detected in the first sample at a concentration of 0.3  $\mu\text{g/l}$  and was not detected in the duplicate sample. Trichloroethane (TCE) was detected in both samples at concentrations of 28 and 35  $\mu\text{g/l}$ . All of the detected values are qualified as estimated due to the laboratory surrogate percent recoveries being outside the acceptable limits for quality control purposes and the reproducibility in the duplicates being outside QC limits for Cis 1,2-DCE. Aromatic and halogenated VOCs were not detected in the trip blank.

The Baker Tank sample contained Perc, toluene, and TCE at concentrations of 1,800, 3.0, and 1.6  $\mu\text{g/l}$ , respectively.

#### 4.1.2 Draft Mall Risk Assessment

On May 31, 1994, HLA and VW&R submitted the draft Mall Risk Assessment (RA) to the Department (HLA, 1994b). The RA evaluated the risk to human health from the complete exposure pathways identified for chemicals in groundwater at the Mall. Inhalation of groundwater vapors in indoor and outdoor air were determined to be the only complete exposure pathways. Risks were calculated to be below the target risk range of  $1 \times 10^{-6}$ .

#### 4.1.3 Soil Vapor Extraction System

The soil vapor extraction (SVE) system operated continuously between April and June 1994 with the exception of days the system was shut down to replace spent carbon. To date, over 1,700 pounds of perc have been removed from the subsurface. Daily measurements of the total VOC concentrations in the influent, effluent, mid-stream, and in the vapor monitoring wells continue to be made while the system is operating. These measurements are made using an Organic Vapor Meter (OVM) Model 580B calibrated to a 100 ppm isobutylene standard.

Air quality samples were collected from the SVE influent, effluent, and the three vapor monitoring wells on June 20, 1994. The samples were

submitted to Data Chem Laboratory, Salt Lake City, Utah. Results will be submitted to the Department upon receipt of the analytical data from the laboratory.

#### **4.2 Work Planned for the Next Reporting Period**

The SVE system will be operated as designed and as specified in the operating permit. The Mall Site Investigation Report/Remedial Action Plan will be submitted to the Department in draft form during July 1994. VW&R will initiate activities to gain authorization from Pier 1 to connect Well EW-1 to the existing SVE system to enhance VOC removal from groundwater.

## **5.0 SCHEDULE**

A schedule for the Mall, PSA, and WSO Order activities anticipated for the next quarter is shown in Table 2. The dates for completion of field activities are estimated and are dependent on access and subcontractor availability.

## 6.0 REFERENCES

Harding Lawson Associates, 1991. *Soil Boring Investigation, Former VW&R Facility, Boise, Idaho*. December 19.

\_\_\_\_\_, 1992a. *Exhibit 3, Work Plan, Boise Town Square Mall Supplemental Investigation and Final Remediation, Boise, Idaho*. September 8.

\_\_\_\_\_, 1992b. *Quality Assurance Project Plan, Boise Mall and Preliminary Study Area Work Plans, Boise, Idaho*. November 2.

\_\_\_\_\_, 1993a. *Affected Area, Boise Idaho*. Letter to Ron Lane, Idaho Department of Health and Welfare, Division of Environmental Quality. March 24.

\_\_\_\_\_, 1993b. *Soil Boring Sampling and Analysis Plan, Preliminary Study Area, Boise, Idaho*. August 13.

\_\_\_\_\_, 1994a. Letter to Ron Lane, Idaho Department of Health and Welfare, Division of Environmental Quality. May 16.

\_\_\_\_\_, 1994b. *Draft Risk Assessment, Boise Towne Square Mall, Boise, Idaho*. May 31.



## TABLES

**Table 1. Quality Assurance Summary  
Quarterly Progress Report  
April-June 1994**

Quality Control Sample	Acceptance Criterion <sup>1</sup>	Number of Analyses	Number of Analyses Within Acceptance Criterion	Percent of Analyses Within Acceptance
<u>FIELD</u>				
Trip blank	No compounds detected	29	29	100%
Field duplicate	100% RPD	58	58	100%
<u>LABORATORY</u>				
Method Blank	No compounds detected	87	87	100%
Matrix Spike	60-150%	27	24	88.9%
Matrix Spike duplicate	60-150%	9	9	100%
Surrogate Spike recovery	70-130%	29	29	100%
Surrogate Spike recovery duplicate	70-130%	3	3	100%

Overall Completeness:  $\frac{239}{242} \times 100 = 99\%$

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<sup>1</sup> Acceptance criterion specified in the QAPP (HLA, 1992b).

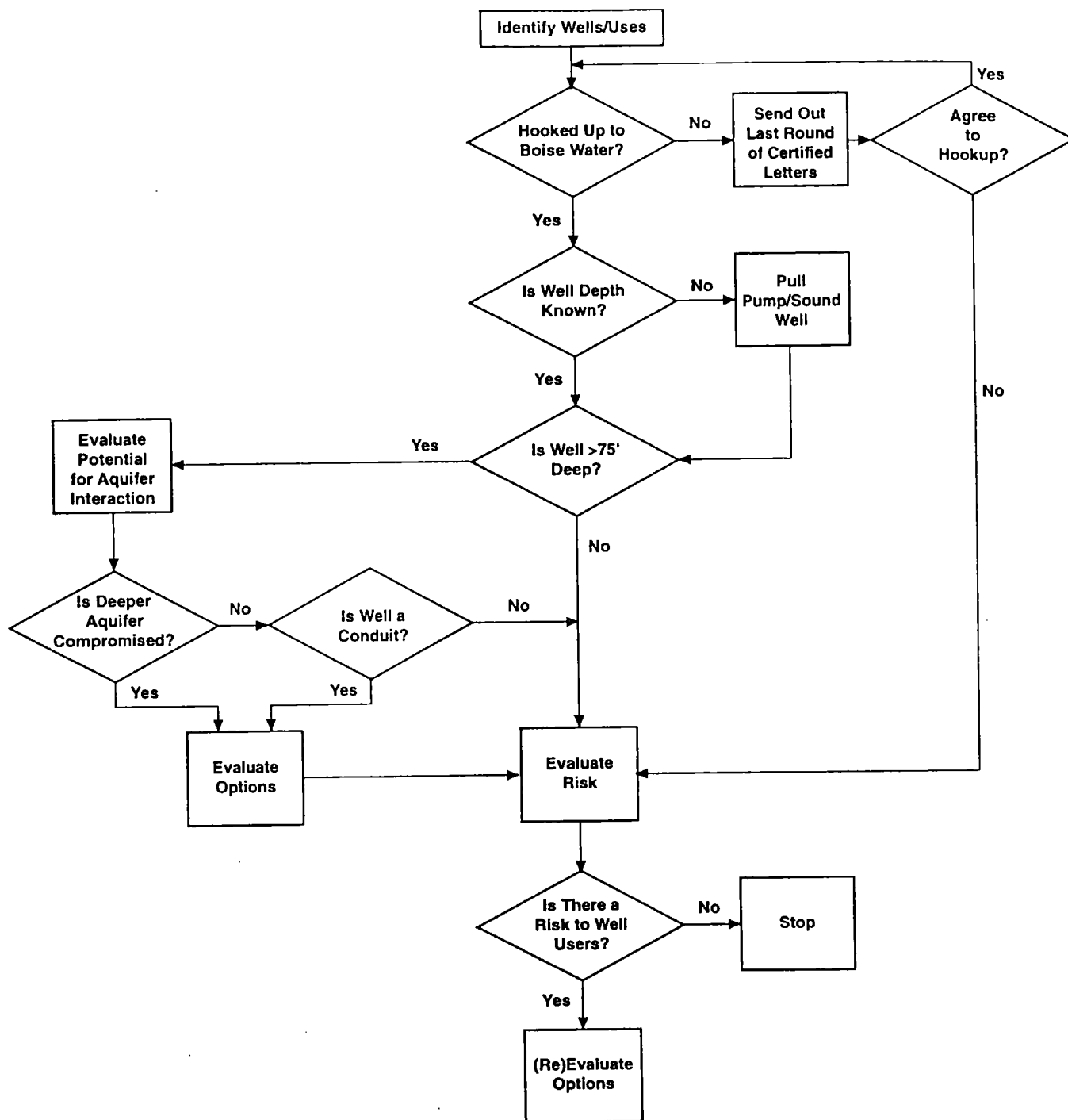


**Table 2. Third Quarter 1994 Schedule  
Quarterly Progress Report  
April-June 1994**

Order	Activity	Estimated Completion Date	Comments
Water Supply	Quarterly Sampling	mid August 1994	
Water Supply	Letter to residents with deep and unknown depth wells.	July 1994	
PSA	Install monitoring/ extraction wells along N. Five Mile Road	July 1994	Dependent on access and subcontractor availability
PSA	Install monitoring wells associated with IRM	July 1996	
PSA	IRM Work Plan	July 1994	
PSA	Geophysical SAP	August 1994	2 weeks following completion of monitoring/extraction wells
PSA	Risk Assessment/ Site Investigation Report	30 days after receipt of final laboratory analytical data from field program.	
Mall	Monitor the SVE System	Daily	
Mall	Submit Mall Site Investigation Report/ Remedial Action Plan	July 1994	



**PLATES**



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**Decision Tree**  
Water Supply Order Activities  
Van Waters & Rogers Inc.  
Boise, Idaho

FIGURE

1

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